AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) Method for ~~increasing process stability, especially absolute gage precision and plant safety, in the~~ hot rolling of steel or nonferrous materials with small degrees of deformation (φ) or small reductions, comprising the steps of: calculating a set rolling force (F_W) and a given adjustment position (s) by taking into account a ~~the~~ yield point at elevated temperature (Re); and determining ~~when calculating the set rolling force (F_W) and the given adjustment position (s), wherein the following relation is used to determine~~ the yield point at elevated temperature (R_e) as a function of ~~the~~ deformation temperature (T) and/or deformation rate (φp), which is then integrated in the function of ~~the~~ flow stress ($k_{f,R}$) for determining the set rolling force (F_W), using the relation

$$R_e = a + e^{b1+b2\cdot T}\cdot]p^c \qquad (2)$$

by expanding a multiplicative flow curve relation by the yield point at elevated temperature (R_e) as a function of the deformation temperature (T) and deformation rate (φp) according to the formula

$$k_{f,R} = a + e^{b1+b2\cdot T}\cdot]p^c\cdot k_{f0}\cdot A_1\cdot e^{m1\cdot T}\cdot A_2\cdot]^{m2}\cdot A_3\cdot]p^{m3} \qquad (3)$$

where

R_e = yield point at elevated temperature

T = deformation temperature

φp = deformation rate

$a,;$ $b_i;$ c = coefficients.

2. (Currently Amended) Method in accordance with Claim 1, wherein the flow stress ($k_{f,R}$) is integrated in a ~~the~~ conventional rolling force equation for determining the set rolling force (Fw) for ~~the~~ automatic gage control as well as for computational models and automatic control processes according to the following equation

$$F_W = Q_p \cdot k_{f,R} \cdot B \cdot (R_W \cdot (h_0 - h_1))^{1/2} \qquad (4)$$

where

F_W = set rolling force

Q_p = function for taking into account the roll gap geometry and friction conditions

$k_{f,R}$ = flow stress, taking into account the yield point

B = rolling stock width

R_W = roll radius

h_0 = thickness before the pass

h_1 = thickness after the pass.

3. (Previously presented) Method in accordance with Claim 1, wherein a material modulus (C_M) is calculated on the basis of the set rolling force (F_W), taking into account the yield point at elevated temperature (R_e) as a function of the deformation temperature (T) and deformation rate (φp) for degrees of deformation smaller than a material-specific limiting degree of deformation (φ_G), according to the formula

$$C_M = (F_W - F_m)/dh_1 \qquad (5)$$

where

C_M = material modulus

F_W = set rolling force

F_m = measured rolling force

dh_1 = change in the runout thickness.

4. (Currently Amended) Method in accordance with Claim 3, wherein a ~~the~~ conventional gage meter equation is expanded into the form

$$ds_{AGC} = (1 + C_M/C_G)dh_1 = (1 + C_M/C_G)\cdot((F_W - F_m)/C_G + s - s_{soll}) \qquad (6)$$

where

ds_{AGC} = change in the roll gap setting

C_M = material modulus

C_G = rolling stand modulus

dh_1 = change in the runout thickness

F_W = set rolling force

F_m = measured rolling force

S = adjustment of the roll gap

s_{soll} = desired adjustment of the roll gap.